



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter
Governor

Dee C. Hansen
Executive Director

Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

February 21, 1992

TO: Barney's Canyon Mine File

FROM: Holland Shepherd, Senior Reclamation Specialist and
Wayne Hedberg, Permit Supervisor *DWH*

RE: Barney's Canyon Mine Plan Amendment Meeting, Kennecott Corporation, M/035/009, Salt Lake County, Utah

Date of Meeting: February 11, 1992

Time of Meeting: 9:30 a.m. to 12:00 a.m.

Participants: Bob Ramsey, Bill Dodge, Mike Pagel, Steve Lakey, Kennecott; Bob Bayer, JBR; Lowell Braxton, Wayne Hedberg, Tony Gallegos, Holland Shepherd, DOGM

The purpose of this meeting was to discuss the new Barney's Canyon plan amendment with Kennecott staff and Division staff prior to sending out the Division's formal review letter. The overall intent was to accelerate the review by reducing the number of formal questions and to focus both operator and Division on the essential issues/questions.

Key topics discussed during this meeting are listed and discussed below. Items/concerns which the operator has committed to are indicated by redline text and areas which still need to be resolved are indicated by underlined text:

Pit Water Quality

The Division raised concerns regarding the fact that all of the pits, discussed in the amendment will be impounding water. As a result it will be necessary to ensure the state that the quality of the pit water will be adequate to prevent groundwater contamination and provide a clean source of drinking water for wildlife.

The operator indicated that a copy of the new plan amendment would be forwarded to the Division of Water Quality (DWQ). DWQ would then have the opportunity to review and comment on the

plan, regarding the potential impacts to ground or surface water quality.

The Division will be asking the operator to provide an acceptable evaluation of the acid-producing potential of the pit material from the Melco, North BCS and South BCS pits. The operator acknowledged that this would be addressed. The analysis needs to be performed on pit material which will be exposed at the time of mine closure. We indicated during the meeting that if acid-base analysis indicated a potential problem, we would then ask the operator to perform a metals analysis.

Waste Dump Water Quality

The Division raised the concern that meteoric water coming into contact with waste material generated from the North and South BCS pits could become degraded by the material. The operator is proposing to dump a large volume of overburden/waste material into a valley acting as a tributary to the Barney's Canyon drainage. The waste material will act as a large dam, having the capacity to impound up to 40 acre-feet of water. The waste dump will probably impound water throughout most of the year. If sulfides are a component of the waste there is a potential for acid production and mobilization of metals, and therefore a possible impact to groundwater.

The Division asked the operator to perform acid-base analyses on the waste material to be produced. The operator indicated that the projected amount of sulfides that would be found in the waste material would be less than 1% of the total and that this small amount would not present a problem. According to the operator, this assumption is based on the fact that the overburden material is very similar to that already evaluated at the Barney's Canyon pit.

The Division asked Kennecott if it would be possible to identify this material as it is encountered in the pit and ensure that it is blended adequately with more neutral calcareous material to prevent acid production. The operator indicated that this would be possible and that the high degree of carbonaceous and calcareous material associated with the overburden would be more than sufficient to neutralize any sulfides found in the wastes. The Division asked that Kennecott incorporate language in the plan, committing to identify and adequately blend sulfide material with alkaline material.

The Division will discuss, in house, whether it will still be necessary to require acid-base analyses of materials to be used as wastes in this area. If this is the case the operator will be asked to develop a program whereby the wastes will be evaluated prior to deposition.

Backfilling Pits

The Division asked the operator to consider the option of backfilling either the South BCS or North BCS pits. These pits are located relatively close to one another and dumping into one or the other should be considered as an option.

Kennecott personnel indicated that they had not considered the backfilling option because they had hoped to strip and mine both pits simultaneously. However, they would look into the economics of backfilling one of the pits, then get back to us with an evaluation of the options.

We asked the operator if backfilling completed portions of the Barney's Canyon Pit would be an option. The operator indicated that this would not be possible because mining will continue at Barney's during the stripping of the BCS pits. As mining proceeds, the Barney's pit will deepen and expand eliminating presently exposed areas.

The operator also mentioned that backfilling exposed portions of the pit would prevent future access to lower grade ore material. Such material would become marketable if the price of gold were to increase sometime in the future.

Slope Reclamation

The Division informed the operator that any slopes greater than 3h:1v would require the application of an acceptable surface stabilization technique. This would apply to any slopes where a variance had not been approved (angle of repose slopes and highwalls would not apply here). We discussed the application of a technique which would involve dozer basins or dozer dimpling of the steep slope. Basically, a dozer would apply random furrows across a steep slope to prevent sheet erosion and provide for better water retention.

Kennecott staff indicated that language would be incorporated into the plan committing to the application of this, or similar, technique on slopes greater than 3:1.

Melco Dump Slopes

The operator has asked for a variance on the outslopes of the Melco dump. The dump slopes will be left at approximately the angle of repose at the end of mine life, thus making them very difficult to reclaim. The Division discussed two options, with the operator, regarding the reclamation of these slopes. Neither option would allow for a complete variance.

The first option would involve the technique addressed in the original Barney's plan. The operator would construct benches across the slope every 100 vertical feet for hydromulcher access and slope stability. The slope would be hydromulched/seeded and planted with seedlings (tublings), at high density rate, across the slope. As explained by the operator the only way to construct the benches would involve pushing material down from the top, and eventually all the way to the bottom with a dozer. The bench cuts would run diagonally, with switchbacks, down the front of the dump. The Division has asked the operator to investigate the practicality of performing this type of bench construction.

The operator indicated that they may be able to test this benching and revegetation technique on the existing 6300 dump, which is adjacent to the Barney's Canyon pit. The dump will be completed next year.

The second option discussed was to regrade the dump to a 2:1 slope at the end of mine life. This would allow for more successful reclamation. The major constraints coming into play here are: 1. because the ground slopes away from the toe of the dump it would require an exceptionally long slope to meet the 2:1 configuration. 2. topsoil would have to be salvaged and applied to the slope. Topsoil has not been salvaged from this area yet because of the earlier approved variance exempting topsoil salvage. According to the operator, if topsoil were to be required for this slope, there would be a topsoil deficit.

Division staff indicated to the operator that we would like to evaluate the situation further before making a decision one way or the other. We also asked that the operator consider the

2:1 slope option and be ready to discuss it further in the near future.

Revision vs Amendment

The Division wanted to clarify to Kennecott that the permit change application would be reviewed as a revision rather than an amendment. This means that the significance of the plan is such that it will require a detailed technical review and a 30 day public comment period before approval.

Topsoil Stockpiles

The Division asked Kennecott staff to clearly designate all large and small topsoil stockpiles on the updated plan maps. The operator indicated that these were being updated in the annual report. These should be updated in the permit revision also.

Overall Barney's Canyon Plan Review

In the initial review of this permit revision, Division staff have noted that some changes have been made to the original MRP. Though these change do not affect the area under review they should be updated into the overall plan. This would be a good time for the operator to incorporate all the large scale changes into the MRP. An example would be the construction of the Barney's Pit dewatering pond and water line to the 4th line. Another example would involve the reclamation of large/wide benches found in the Barney's pit area. These were not addressed in the original plan, because they were not planned on. These benches, because of their size and accessibility present another reclamation opportunity to the operator, which should be addressed.

Maps

We asked that the operator provide some additional information on the maps. The Division would like to have a map showing the proposed disturbed area superimposed over the existing permitted area. Also, we asked that the maps clearly show all the existing facilities, including any new, significant alterations to the original MRP. These maps should include a distinct disturbed area border.

Revegetation

The Division indicated that some additional species may be added to the seed list for Barney's Canyon Mine. A recommendation of desirable species will be provided to Kennecott with the plan review.

Sediment Control and Runoff

The Division asked that Kennecott upgrade the sediment and erosion control treatments associated with the haul road drainage network. This could be accomplished with the application of straw bales, silt fences or sediment traps established at appropriate intervals along the road ditches and inlets to the road culverts.

The Division also asked that the operator look at the sizing of the small temporary sediment pond, which was recently constructed at the base of the Melco pit, and ensure that it is sized adequately for at least the 10 year/24 hour rainstorm event. The spillway on the structure should be designed to pass the 25 year/24 hour event storm. Since road drainage will be reporting to this pond water coming off the road must be included in these calculations. The operator indicated that this would be addressed.

Permit Package

The Division discussed our desire to have the operator submit the plan revision in a manner which could be incorporated into the overall plan. This would require numbering the replacement pages appropriately, updating the maps, the table of contents, and updating the overall plan where appropriate.

We discussed proceeding with the revision as a separate submittal and then updating the overall plan. Since it will not be time efficient from the Division view point to do this in two steps, it would probably be better to incorporate the revision into the overall plan at this stage.

The Division suggests that the operator provide only those replacement pages which need to be changed or which discuss new material. The whole plan need not be duplicated. The Division can use our existing volumes to incorporate the new information.

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Pages of new or updated material should be numbered and dated appropriately.

Updating the entire permit package would give both the Division and operator an opportunity to evaluate the progress of the mining operation in relation to the original MRP package and make any change where appropriate.

Impoundments

The Division indicated that it would be necessary for the operator to obtain approval from the Division of Water Rights, Dam Safety section, for any structures capable of impounding more than 20 acre-feet of water. Approval would likely be necessary for the South BCS waste dump.

jb

cc: Bob Ramsey, Kennecott
Bob Bayer, JBR
Lowell Braxton, DOGM
Minerals Staff

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